What is the relationship between breastfeeding and maternal weight change?

Conclusion

A moderate body of consistent evidence shows that breastfeeding may be associated with maternal post-partum weight loss. However this weight loss is small, transient, and depends on breastfeeding intensity and duration.

Grade: Moderate

Overall strength of the available supporting evidence: Strong; Moderate; Limited; Expert Opinion Only; Grade not assignable For additional information regarding how to interpret grades,click here.

Evidence Summary Overview

The Committee identified four reviews that addressed the question of interest (Dewey, 2004; Fraser, 2003; Ip/AHRQ, 2007**; Kramer and Kakuma, 2004). Its conclusion is drawn from two reviews (Ip/AHRQ, 2007; Dewey, 2004) as the Agency for Health Care Research and Quality (AHRQ) review builds upon Fraser's review, and this review also included all 11 studies with measured postpartum weight outcomes that were identified by Dewey. Kramer's review only included two randomized controlled trials(RCTs) conducted in Honduras, and these were examined in-depth in Dewey's review.

Dewey based her review on 15 studies. Two RCTs conducted in Honduras by her group showing that exclusive breastfeeding for six months (vis a vis four months) led to greater weight loss between four and six months postpartum. In one of the trials, the weight loss was -0.6kg and in the second one it was -0.2kg. The difference in weight loss across trials was explained by the between-group differences in breast milk energy output. Dewey classified the 13 prospective studies that met the initial inclusion criteria into those that actually measured vs. those that estimated weight changes. Six out of the seven studies that had the best methodology found an inverse association between breastfeeding and postpartum weight change. By contrast, only one out of the six studies with poor methodology detected such association. Dewey concluded that there is a dose-response relationship between breastfeeding duration and intensity and postpartum weight loss, and that weight loss differences attributed to breastfeeding were transient, being more evident within three to six months postpartum.

The AHRQ identified eight prospective studies that met their inclusion criteria, most of which were published after the reviews by Dewey and Fraser. From three studies that examined return to pre-pregnancy weight, one found that exclusive breastfeeding was not associated with weight change from pre-pregnancy to one to two years postpartum. A second study found that breastfeeding at one year was associated with -1.2 kg of weight retention at one year postpartum, compared with a weight accretion of 2kg among women formula feeding during the same period. A third study found that breastfeeding was associated with reaching pre-pregnancy weight six months earlier, vis-a-vis formula feeding. Two prospective studies found that postpartum weight change was inversely associated with breastfeeding intensity and duration. The remaining three studies that classified women according to different infant feeding categories (breastfeeding, partial breastfeeding, formula

feeding) did not find significant between-group differences in total postpartum weight changes. However, consistent with the conclusions reached by Dewey, one study did find more rapid weight loss between three and six months postpartum among women exclusively breastfeeding. The AHRQ review concluded that the effect of breastfeeding on postpartum weight loss is unclear and that if an association is present, the effect size is likely to be small.

In sum, Dewey and AHRQ reported similar findings with mostly different studies. Dewey's review examined the transient effects in more detail and included RCTs, providing strong support to the conclusion reached by the Committee.

Evidence Summary Paragraphs

Fraser AB et al, 2003 (positive quality) conducted a systematic review to investigate the impact of lactation on maternal weight after delivery. Searches of POPLINE, PubMed, EMBASE and LILACS were conducted to identify articles that measured weight loss among breastfeeding women published through 2002. The final sample included 28 studies (15 prospective cohort studies, one retrospective cohort study, one cross-sectional study and 11 case-series reports). The authors concluded that due to the wide variations in study design used in these studies, as well as the lack of intervention trials, there is insufficient evidence to support an effect of lactation on maternal weight after delivery. The authors suggest that better longitudinal studies with a clear definition of breastfeeding, clear outcome measures, study period lasting one to two years post-delivery and better control for potentially confounding factors are needed to resolve this issue.

Kramer MS et al, 2004 (positive quality) conducted a systematic review to investigate evidence concerning effect on infant and maternal health of exclusive breastfeeding for six months compared to exclusive breastfeeding for three to four months followed by mixed breastfeeding to six months. Computerized database searches were conducted to identify studies published through August 2000 that included an assessment of breastfeeding duration and maternal postpartum weight loss. The authors note that two trials done in Honduras found that prolonged exclusive breastfeeding was associated with more rapid maternal postpartum weight loss. However, it is unclear whether these findings are generalizable to developed countries. Based on the overall results of this review, the World Health Organization (WHO) recommends breastfeeding for six months for optimal maternal and child health.

Ip et al, 2007 (AHRQ Report) conducted a systematic review to determine the effects on maternal and infant health of breastfeeding in developed countries. Searches of MEDLINE, CINAHL, and the Cochrane Library were conducted in November 2005 to identify relevant studies. The final sample included eight prospective cohort studies that examined the relationship between breastfeeding and return to pre-pregnancy weight (N=3) or postpartum weight changes (N=5). The authors found that effect of breastfeeding on return to pre-pregnancy weight within one to two years post-delivery was less than 1 kg. Studies on breastfeeding and postpartum weight change were inconsistent. Many of the studies found other factors that were more strongly related to postpartum weight retention than breastfeeding, including income, baseline body mass index (BMI), ethnicity, gestational weight gain and energy intake. The authors concluded that the effect of breastfeeding on mothers' return to pre-pregnancy weight was negligible and the effect of breastfeeding on postpartum weight loss was unclear.

Dewey KG, 2004 (neutral quality) conducted a review of the literature on the impact of breastfeeding on maternal postpartum weight loss. The final sample included 13 studies. Of six observational studies in which postpartum weight change was estimated (rather than measured directly), only one study showed an association with breastfeeding. Of the seven studies in which postpartum weight change was measured (rather than estimated), six studies showed greater weight

or fat loss in women who breastfed longer, particularly at three to six months postpartum. The authors conclude that breastfeeding does enhance the rate of weight loss postpartum, but the effect is relatively small and may not be detectable in studies that lack adequate statistical power, have imprecise data on postpartum weight change or do not account for the exclusivity and/or duration of breastfeeding.

**The following publication (Cochrane Review) was not abstracted, but was used in the evidence analysis:

Ip S, Chung M, Raman G, Chew P, Magula N, DeVine D, Trikalinos T, Lau J. Breastfeeding and Maternal and Infant Health Outcomes in Developed Countries. Evidence Report/Technology Assessment No. 153 (Prepared by Tufts-New England Medical Center Evidence-based Practice Center, under Contract No. 290-02-0022).*AHRQ Publication No. 07-E007*. Rockville, MD: Agency for Healthcare Research and Quality. April 2007.
The full report can be accessed here:
http://www.ahrq.gov/downloads/pub/evidence/pdf/brfout/brfout.pdf.

Overview Table Data (Ip et al, 2007)

Author, Year, Study Design, Class, Rating	Participants	Methods: Diet Assessment; Adiposity Measurement	Outcomes
Ip et al, 2007 **Study Design: Cochrane Systematic Review** **Class: M** **Quality Rating: Not applicable**	N=8 prospective cohort studies that examined the relationship between breastfeeding and return to pre-pregnancy weight (N=3) and postpartum weight Δs (N=5).	Searches of MEDLINE, CINAHL, and the Cochrane Library were conducted in November 2005 to identify relevant studies.	The effect of breastfeeding on mothers' return to pre-pregnancy weight was negligible (less than 1 kg over one to two years postpartum), and the effect of breastfeeding on postpartum weight loss was unclear.

View table in new window

Author, Year, Study Design, Class, Rating	Participants	Methods: Diet Assessment; Adiposity Measurement	Outcomes

Dewey KG 2004 Study Design: Systematic Review Class: M Rating:	N=13 studies.	Not applicable.	One of six observational studies in which postpartum weight Δ was estimated showed an association with breastfeeding. Six of seven studies in which postpartum weight Δ was measured showed greater weight of fat loss in women who breastfed longer, three to six months postpartum.
Fraser AB and Grimes DA 2003 Study Design: systematic review Class: M Rating:	N=28 studies (15 prospective cohort studies, one retrospective cohort study, one cross-sectional study and 11 case-series reports).	Searches of POPLINE, PubMed, EMBASE, and LILACS were conducted to identify articles that measured weight loss among breastfeeding women published through 2002.	Due to the wide variations in study design used in these studies, as well as the lack of intervention trials, there is insufficient evidence to support an effect of lactation on maternal weight after delivery.
Kramer MS and Kakuma R 2004 Study Design: systematic review Class: M Rating:	N=2 studies that assessed postpartum maternal weight loss.	Computerized database searches were conducted to identify studies published through August 2000 that included an assessment of breastfeeding duration and maternal postpartum weight loss.	The authors note that two trials done in Honduras found that prolonged exclusive breastfeeding was associated with more rapid maternal postpartum weight loss. However, it is unclear whether these findings are generalizable to developed countries.

Research Design and Implementation Rating Summary
For a summary of the Research Design and Implementation Rating results, click here.

Worksheets
Dewey KG. Impact of breastfeeding on maternal nutritional status. *Adv Exp Med Biol.* 2004;554:91-100.

Fraser AB, Grimes DA. Effect of lactation on maternal body weight: a systematic review. Obstet Gynecol Surv. 2003 Apr;58(4):265-9

Kramer MS, Kakuma R. The optimal duration of exclusive breastfeeding: a systematic review. Adv Exp Med Biol. 2004;554:63-77. Review. PMID: 15384567